

Simplified Oligomerization Process

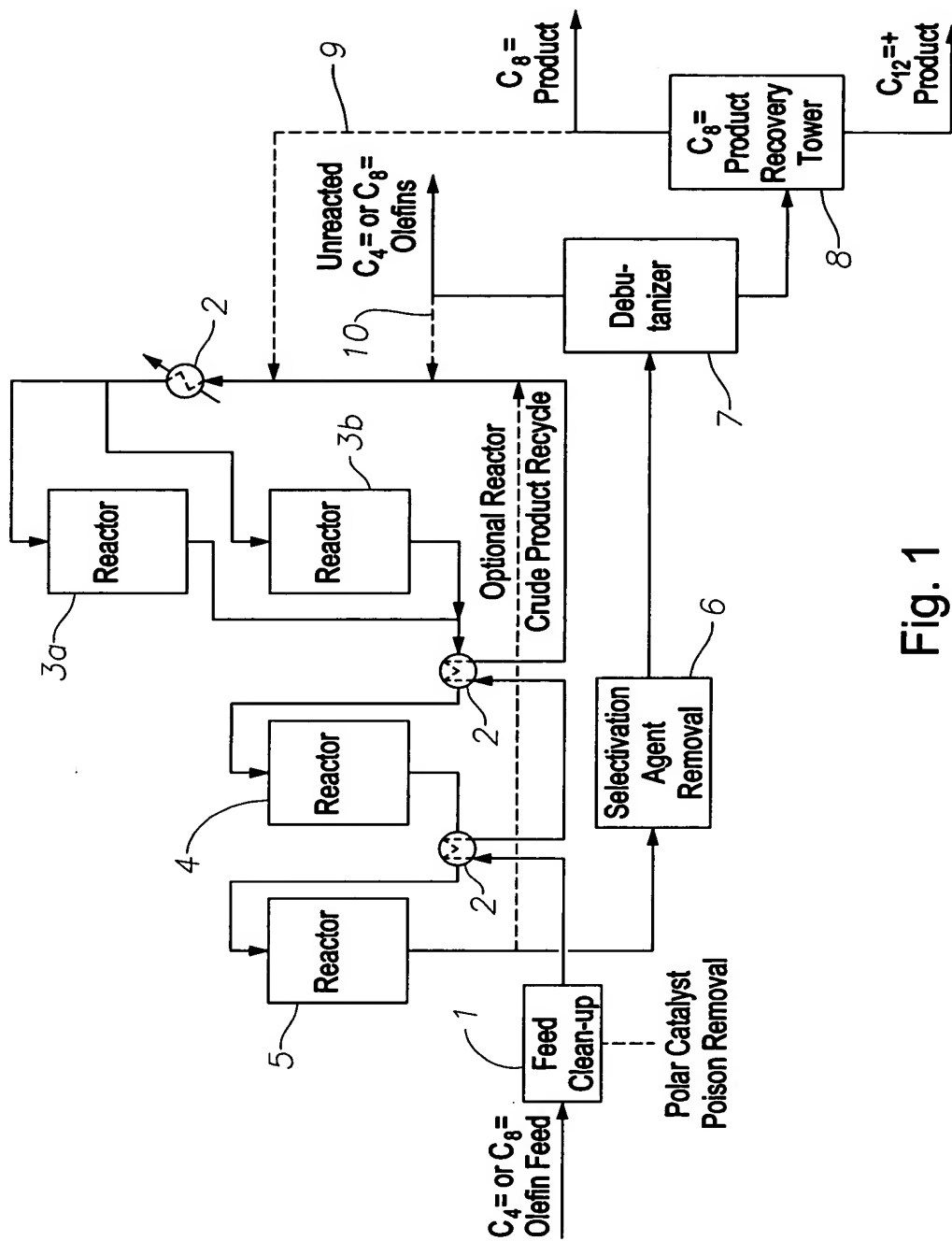


Fig. 1

Octene Branchiness as a Function of Conversion

Butene Oligomerization Data

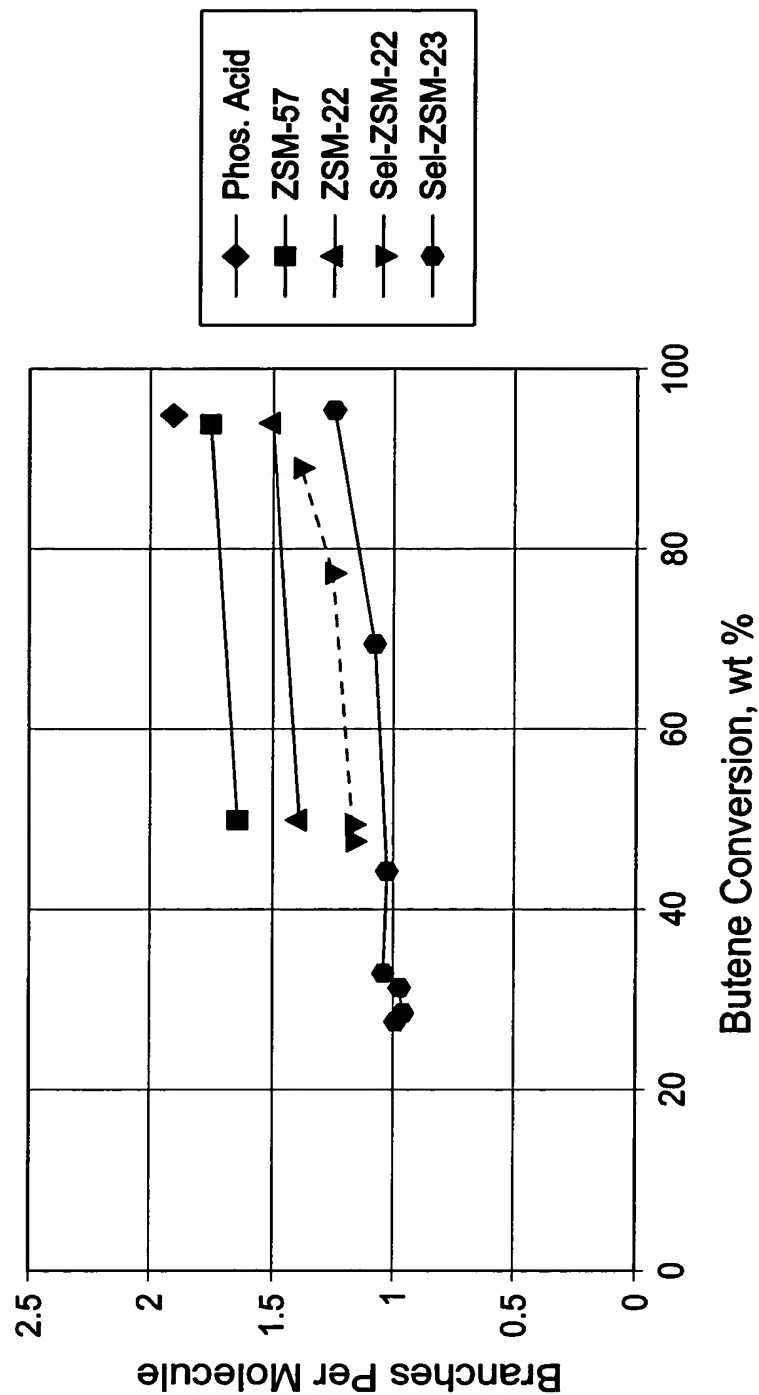


Fig. 2

Hydroformylation of Lightly Branched, and Low Tetrasubstituted Double Bond Octenes Results in Faster Reaction Rates and Improved Yields.

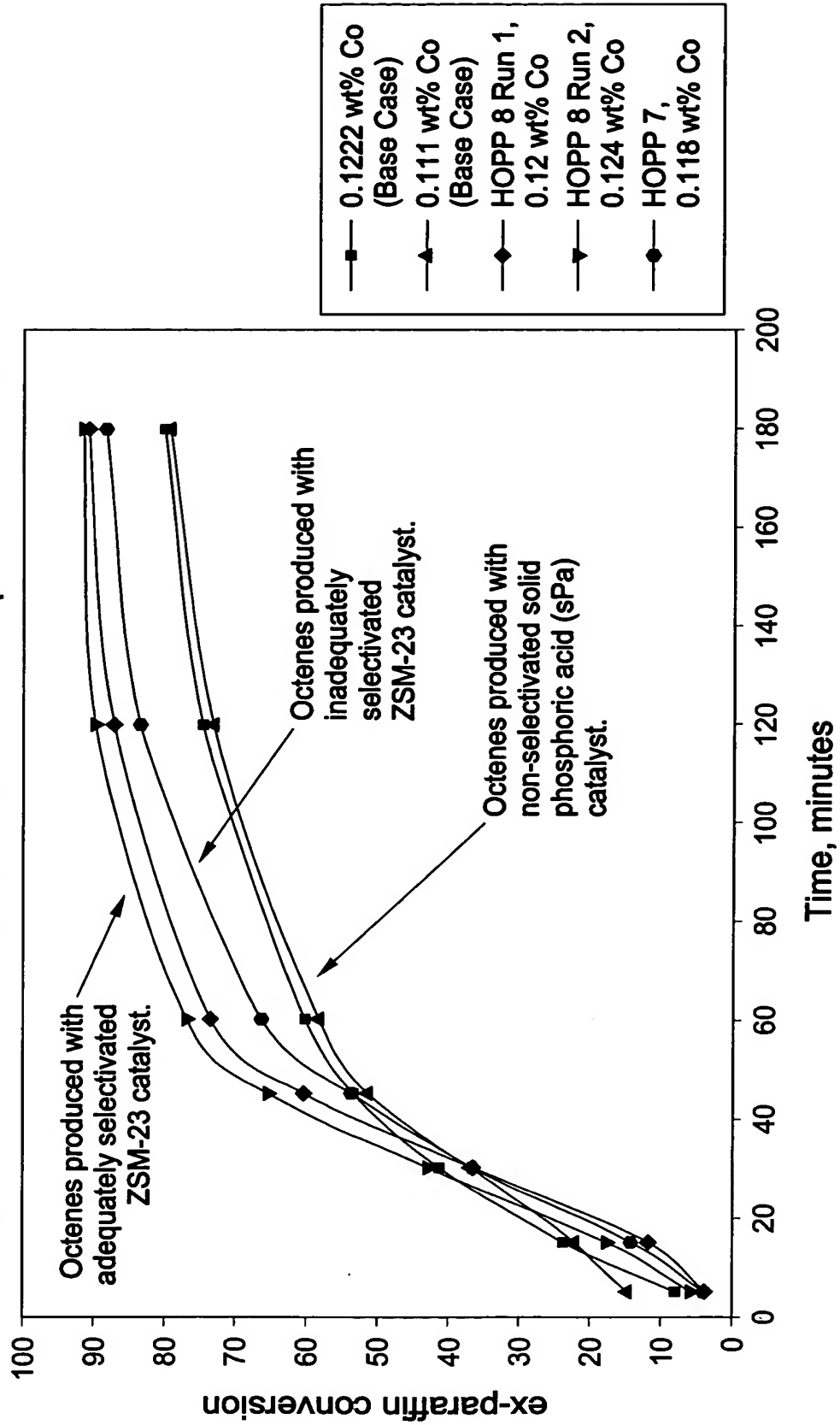


Fig. 3

Simplified Oligomerization Process

The diagram illustrates a simplified oligomerization process. It begins with a **$C_4 = \text{or } C_8 =$ Olefin Feed** entering a **Feed Clean-up** unit (11), which also performs **Polar Catalyst Poison Removal**. The output of the feed clean-up unit goes to a **Selectivation Agent Removal** unit (16). The output of unit 16 is then fed into a series of **Reactors** (15, 14, 13a, 13b). The output of the final reactor (13b) is sent to a **Debutanizer** (17). The debutanizer has two main outputs: **Unreacted $C_4 = \text{or } C_8 =$ Olefins** (20) and a stream (18) that goes to a **$C_8 =$ Product Recovery Tower** (21). The output of tower 21 is **$C_8 =$ Product**. The stream (18) also goes to a **$C_{12} =$ Product Recovery Tower** (22). The output of tower 22 is **$C_{12} =$ Product**. The stream (18) also goes to a **$C_{12} = \text{or } C_{16} =$ Product Recovery Tower** (23). The output of tower 23 is **$C_{12} = \text{or } C_{16} =$ Product**. The stream (18) also goes to a **$C_{15} = \text{or } C_{20} =$ Product** stream.

Fig. 4

Fig. 4

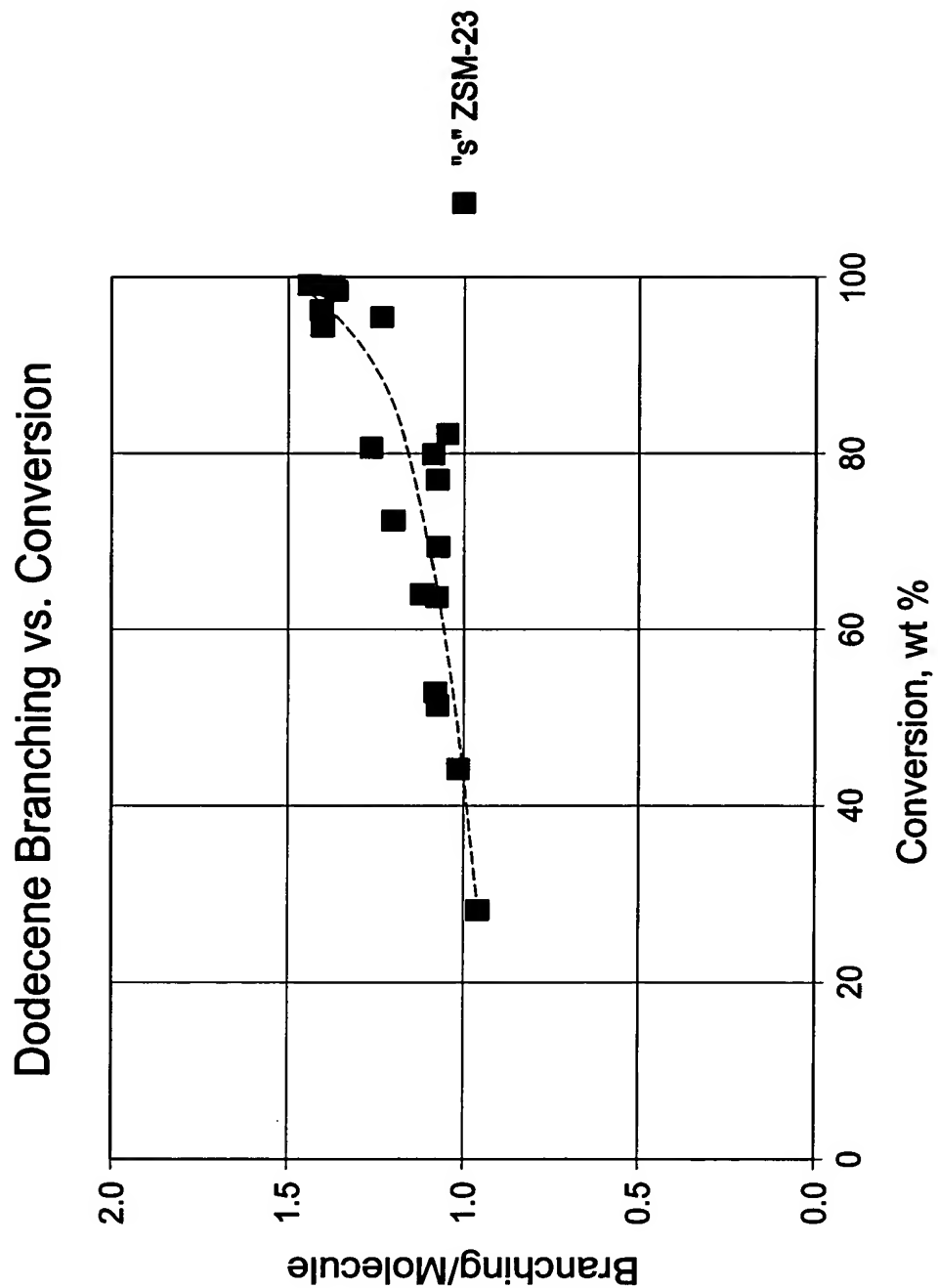


Fig. 5